



# **ACT National Curriculum Survey**<sup>®</sup> 2012

Policy Implications on Preparing for Higher Standards

ACT is an independent, not-for-profit organization that provides assessment, research, information, and program management services in the broad areas of education and workforce development. Each year we serve millions of people in high schools, colleges, professional organizations, businesses, and government agencies, nationally and internationally. Though designed to meet a wide array of needs, all ACT programs and services have one guiding purpose—helping people achieve education and workplace success.

# **ACT National Curriculum Survey**<sup>®</sup> 2012

## Policy Implications on Preparing for Higher Standards

### **Introduction**

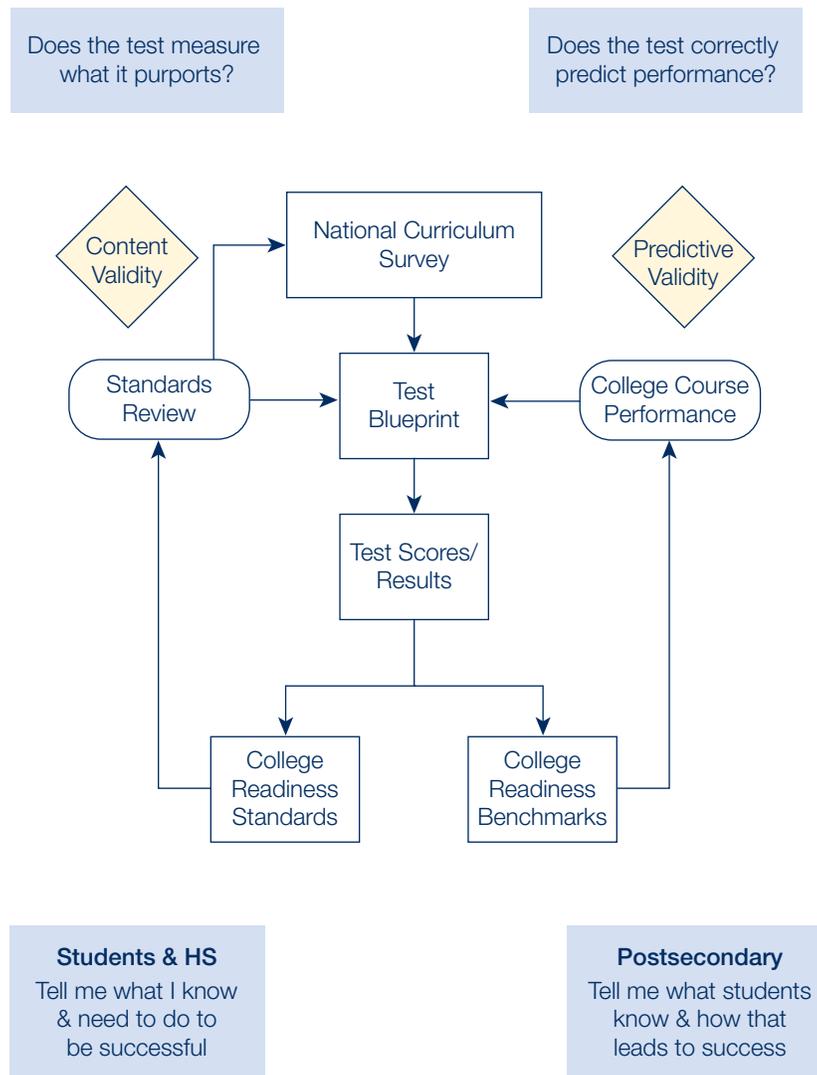
Every three to five years, the ACT National Curriculum Survey<sup>®</sup> asks educators about what they teach (or don't teach) in their courses and how important they feel various topics in their discipline are for students to know to be successful in these courses and in future coursework. The survey also asks educators for their opinions on educational topics of current interest, such as the college readiness of their students or the implementation of improved standards, such as ACT's College Readiness Standards or the Common Core State Standards.

Prior National Curriculum Survey efforts included educators from middle school through the postsecondary level; for the first time, the National Curriculum Survey 2012 also included elementary school teachers. ACT knows that early learning is important for later high school performance—not only do we have the assessment data to prove it, but we now also have survey data about its importance from the very people who teach it.

### **The Purpose of the Survey**

The National Curriculum Survey is a critical step in the process used to build and regularly update a valid suite of ACT assessments that is empirically aligned to college readiness standards. The survey helps to inform the test blueprint for the assessments (see Figure 1). Results from the assessments are used to validate ACT's College Readiness Standards as well as the College Readiness Benchmarks. (The figure represents only this validation cycle, and does not represent how the Standards and Benchmarks were derived.)

**Figure 1:** The Science of ACT Assessments



ACT is committed to validity research. The first type is research into content validity, designed to answer the critical question: Does the test measure what it purports to measure? Essentially, this involves the validation of ACT’s College Readiness Standards, which are built on a foundation of years of empirical data and continually validated through the National Curriculum Survey as well as frequent external standards reviews. The second type of research, into predictive validity, is equally important. Using actual course performance, we answer a second critical question: Does the test correctly predict performance? Constant monitoring allows ACT to ensure that the answer to both of the aforementioned questions is yes.

This science behind our assessments—the evidence base and ongoing research—is critical to answering the key question of what matters most in college and career readiness. The National Curriculum Survey represents ACT’s commitment to:

- use evidence and research to develop and validate our standards, assessments, and benchmarks;
- maintain a robust research agenda to report on key educational metrics (*The Condition of College & Career Readiness*, *Enrollment Management Trends Report*, and *The Reality of College Readiness*); and
- develop assessments, reports, and interventions that will help individuals navigate their personal path to success along a kindergarten-through-career continuum.

Accordingly, the following principles have shaped and will continue to drive our development agenda:

1. Maximize instructional time.
2. Establish reasonable testing times.
3. Provide transparent connections between ACT’s College Readiness Standards and the Common Core State Standards.
4. Leverage technology to enhance student engagement, produce more meaningful results, and share results in a timely fashion.
5. Increase the emphasis on evidence-centered design, implementing as quickly as possible given technological advances (such as artificial intelligence scoring).
6. Include science as a critical content area in our assessment batteries.
7. Reflect the reality that there are multiple dimensions of readiness and success (validated by research).

As a not-for-profit educational research organization, we will use these principles to drive the development and continuous improvement of ACT’s current and future solutions, as well as the research agenda associated with them, thereby enabling ACT to fulfill its mission of helping all individuals achieve success.

## The Survey Results

ACT makes the results of each National Curriculum Survey public in recognition that ACT’s data can help educational stakeholders make more informed decisions about college readiness standards and about the alignment of those standards with assessment and curricula. (Survey results for the ACT National Curriculum Survey 2012 are available at <http://www.act.org/research-policy/national-curriculum-survey>.)

The present report, *Policy Implications on Preparing for Higher Standards*, highlights those findings from the ACT National Curriculum Survey 2012 that are particularly relevant to current education policy efforts. The implications of these findings for education policy and practice are as follows:

- A large gap still exists between how high school teachers perceive the college readiness of high school graduates and how college instructors perceive the readiness of their incoming first-year students. This suggests a continuing lack of curricular alignment between the K–12 and postsecondary education systems that may be hampering the efforts of K–12 to prepare students for life after high school.
- Many classrooms may need better and/or more secure access to computer technology in order to effectively administer new assessments aligned to college- and career-ready standards; also, potential inequality of access to computers across schools, districts, and states may create or exacerbate reliability issues with assessment results.
- Especially at the high school level, where there are differing degrees of familiarity with the improved standards, state and local efforts to implement the standards have not yet achieved their goals. This suggests that not enough teachers are yet ready for the necessary changes in curriculum that are likely to accompany the switch into a classroom environment driven by college- and career-ready standards.
- Nevertheless, K–12 teachers tend to be generally optimistic about the value and potential effectiveness of college- and career-ready standards. This suggests that most of these teachers support the effort to improve standards and will work to help make it a success in the classroom.

In the next section of the report, the findings leading to these implications are described in detail. The final section of the report offers policy recommendations suggested by the findings and implications, while the Appendix contains detailed information about the survey sampling process.

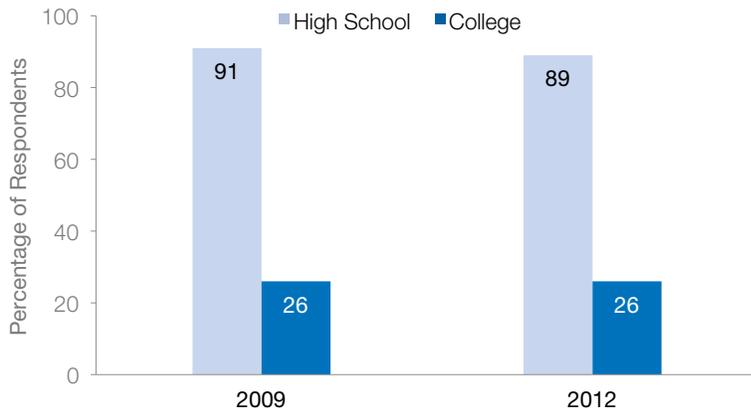
## Policy-Related Findings

### Topic 1: Student Academic Readiness

- **A stark contrast still exists between high school teachers' perceptions of their students' readiness for college-level work and college instructors' perceptions of the readiness of their entering students.**

The vast majority of the high school teachers we surveyed reported that, after leaving their course, their students are “well” or “very well” prepared for college-level work in that content area. In contrast, only about one-fourth of the college instructors we surveyed reported that their incoming students are well or very well prepared for first-year credit-bearing courses in their content area. Figure 2, which gives the educators' responses from both the 2012 and 2009 surveys (ACT, 2009, 2013), suggests that respondents' opinions on this question changed very little in three years.

**Figure 2:** Percentages of Educators Reporting that Their Students Are “Well” or “Very Well” Prepared for College-Level Work in Their Content Area



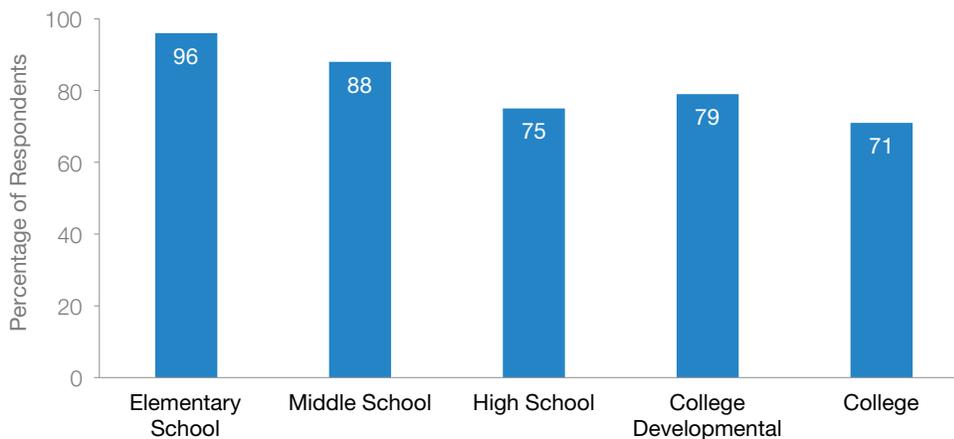
**Note.** The data in this chart are from *ACT National Curriculum Survey 2009*, by ACT, 2009, Iowa City: Author, and *ACT National Curriculum Survey 2012*, by ACT, 2013, Iowa City: Author.

Interestingly, although the percentage of instructors of first-year college developmental (i.e., remedial) courses reporting that students left their courses well or very well prepared was nearly as high in 2012 as that of the high school teachers (87 percent vs. 89 percent), 13 percent of college developmental instructors reported that their students were “poorly” or “very poorly” prepared for credit-bearing college coursework even after completing a developmental course.

- **Clear majorities of educators believe that at least half of their students possess an appropriate degree of reading comprehension.**

Almost all elementary school teachers we surveyed reported that “about half,” “more than half,” or “all, or nearly all” students leave their courses with a grade-appropriate level of reading comprehension (Figure 3). A smaller percentage of middle-school teachers reported that at least half of their students leave their courses with a level of reading comprehension appropriate to begin high school coursework, and a yet smaller percentage of high school teachers reported that at least half of their students leave their courses with a level of reading comprehension appropriate to begin first-year credit-bearing college coursework.

**Figure 3:** Percentages of Educators Reporting that about Half or More of Their Students Have an Appropriate Level of Reading Comprehension



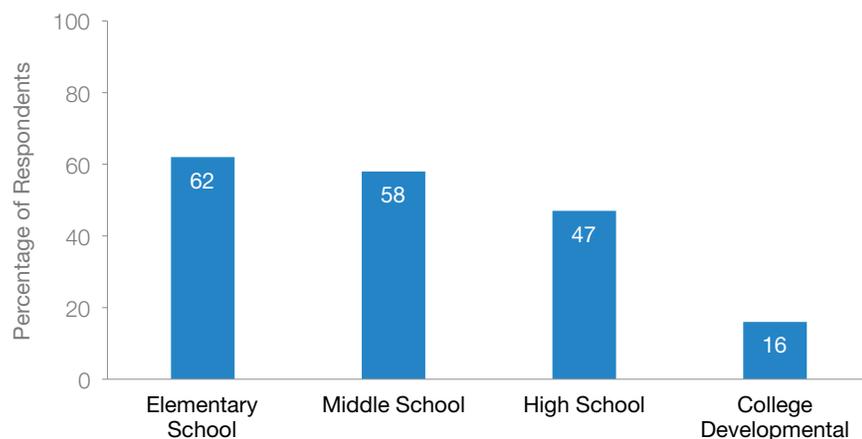
The percentage of instructors of first-year credit-bearing college courses reporting that at least half of their entering students have the necessary reading comprehension skills for success in their courses matches the high school percentage almost exactly—suggesting that, whatever reservations these instructors may have about their students’ readiness for college (see Figure 2), they do not see the students’ degree of reading comprehension as a primary concern.

Nevertheless, it is also worth noting that one-fourth or more of high school teachers and instructors of credit-bearing college courses (25 percent and 29 percent, respectively) reported that fewer than half of their students possess an appropriate level of reading comprehension.

- **Educators’ opinions of the effectiveness of their state’s, district’s, or school’s local K–13 alignment or articulation efforts aimed at increasing high school graduates’ readiness for college tend to be less positive the farther along in the educational pipeline they teach.**

Eighty-two percent of elementary school teachers, 85 percent of middle school teachers, 91 percent of high school teachers, and 67 percent of instructors of first-year college developmental courses reported being aware of such alignment or articulation efforts. Of these educators, about 3 in 5 elementary and middle school teachers reported that such efforts are “very effective,” while fewer than half of the high school teachers reported this (Figure 4).

**Figure 4:** Percentages of Educators Reporting that Their Local K–13 Alignment or Articulation Efforts to Increase College Readiness after High School are “Very Effective” (Among Those Aware of Such Efforts)



Notably, the percentage of college developmental instructors reporting that these efforts are very effective is only 16 percent, which may reflect these instructors’ direct experience teaching high school graduates who come to college academically unprepared. (Perhaps another factor is that the responses of only two-thirds of the college developmental instructors we surveyed are reflected here; one-third of these instructors—a far higher percentage than of any of the other groups of teachers—had answered that they were unaware of any such efforts.)

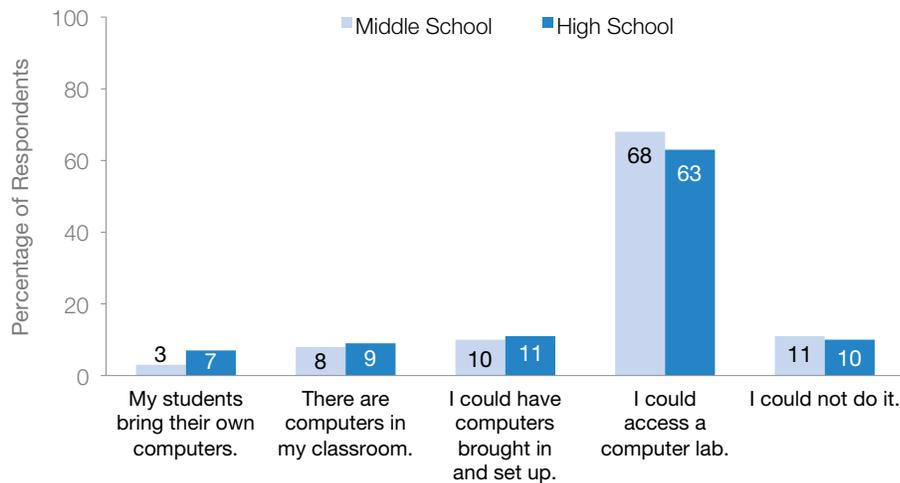
In addition to and in keeping with the data presented in Figure 4, the percentages of educators reporting that their local alignment or articulation efforts are “slightly” or “not at all” effective both increase steadily across educational levels, the former from 35 to 70 percent and the latter from 2 to 13 percent.

## Topic 2: Classroom Computer Access

- **In the vast majority of middle school and high school classrooms, teachers would need to use a computer lab to provide computer access to all students simultaneously for testing purposes.**

Many of the proposed college and career readiness assessments tied in whole or in part to mastery of college- and career-ready standards intend to accomplish a great deal of this assessment through computer-based testing. If the results of our survey are an accurate indication, it appears that very few middle school or high school classes<sup>1</sup> would currently be able to take such assessments as intended unless they have dependable access to their school’s computer lab (Figure 5).

**Figure 5:** Middle School and High School Teachers’ Responses to the Question, “How would you provide computer access to all of your students simultaneously?”



What’s more, using a computer lab may not be the most efficient way to administer the formative components of these assessments, given that such components are designed to provide regular and frequent feedback on student progress so that teachers can adjust individual instruction as needed.

Therefore, in addition to the work that many teachers may need to do over the next few years to increase their knowledge of the standards before they are implemented in all the states that have adopted them (see next page), many schools may also need to improve the availability of technology to individual classrooms before significant numbers of students can take advantage of 21st-century assessment technologies. In the meantime, this may mean that designers of assessments linked to college- and career-ready standards will need to provide traditional alternatives to their planned innovative assessments at least temporarily until computers are available more broadly in schools throughout the United States.

<sup>1</sup> Elementary school teachers were not asked this question.

### Topic 3: Common Core State Standards

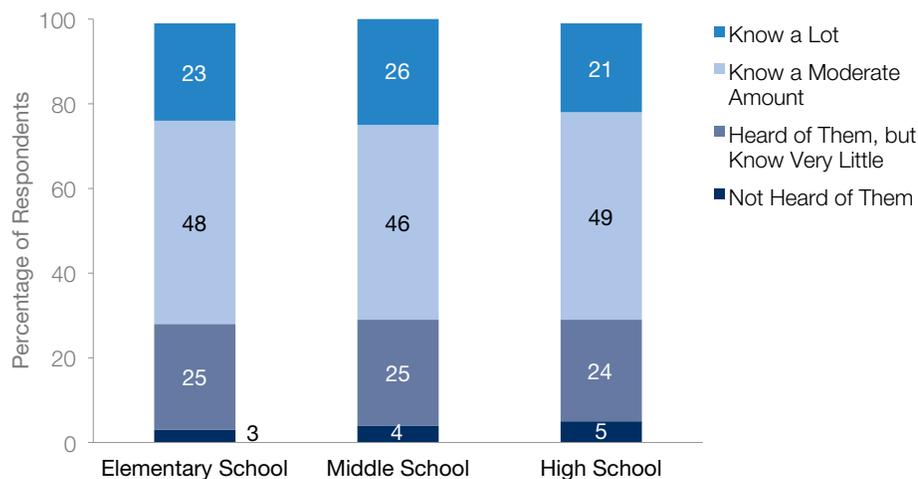
The Common Core State Standards Initiative, a state-led effort to develop college- and career- ready standards for English language arts and mathematics across the K–12 grades, is a landmark development in US public education. The standards resulting from the initiative align the two subject areas with a uniformly higher standard than has been the norm in the past: readiness for college and career by high school graduation.

As of this writing, 46 states and the District of Columbia have adopted the standards in whole or in part.<sup>2</sup> According to the most recent available information (Council of Chief State School Officers, 2012), eight states and the District of Columbia have either already implemented the standards or plan to do so during the current (2012–13) school year; 20 states plan to implement no later than the 2013–14 school year; 15 states plan to implement no later than the 2014–15 school year; two states plan to implement no later than the 2015–16 school year; and one state has not announced when it will implement.

- **About 7 in 10 K–12 teachers report knowing much about the Common Core State Standards, while about 4 percent have not heard of the standards at all.**

Given recent and pending implementations of the Common Core State Standards across the grade levels from kindergarten through twelfth grade, the percentages shown in Figure 6 suggest that a number of the teachers we surveyed may lag in knowledge about the standards.

**Figure 6:** Percentages of K–12 Teachers Reporting Various Degrees of Familiarity with the Common Core State Standards<sup>3</sup>



Of the three groups, high school teachers—those with the most proximate responsibility to help ensure that students are prepared for college-level work—have the smallest percentage who report knowing a lot about the Common Core. This may be due in part to local and district awareness efforts in some states that have chosen to focus first on earlier grades.

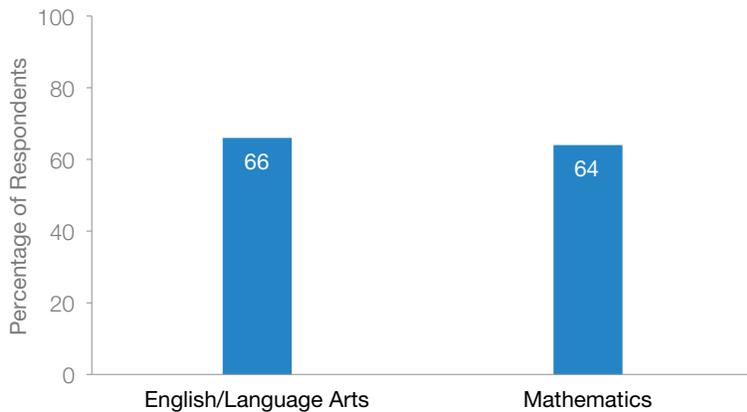
<sup>2</sup> Minnesota has adopted only the standards for English language arts.

<sup>3</sup> Due to rounding, percentages for each group do not sum to 100.

- **Just under two-thirds of high school teachers who are aware of the Common Core State Standards report that the standards reflect academic expectations for college readiness “a great deal” or “completely.”**

A slightly higher percentage of high school English/language arts teachers than mathematics teachers report that the Common Core State Standards in their discipline represent the skills and knowledge needed for college readiness in that discipline (Figure 7).

**Figure 7:** Percentages of High School Teachers Reporting that the Common Core State Standards in Their Discipline Reflect College Readiness Expectations “A Great Deal” or “Completely” (Among Those Aware of the Standards)

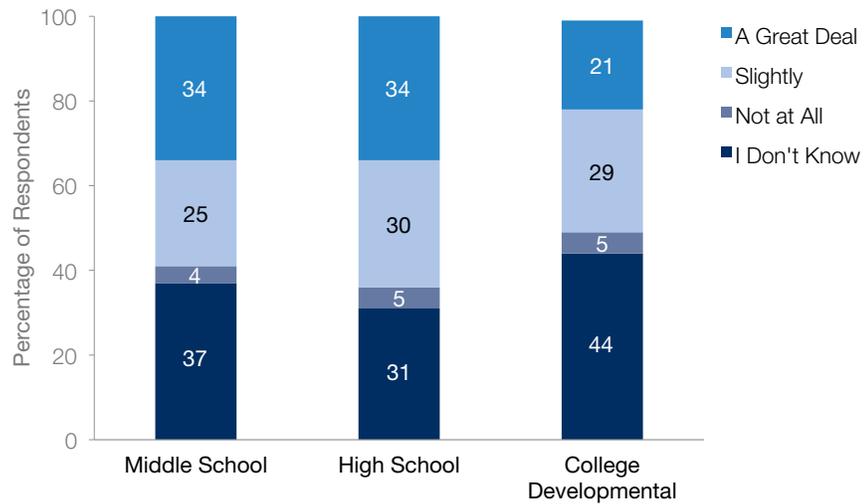


Interestingly, considering that this group did not include teachers who had reported that they were not aware of the standards at all, nearly one-fourth (23 percent of English/language arts teachers and 24 percent of mathematics teachers) said that they “don’t know” whether the Common Core reflects college readiness expectations in their discipline.

- **Although educators’ opinions about whether the Common Core State Standards will improve the college readiness of all students tend to be slightly less positive the farther along in the educational pipeline they teach, large percentages say they simply do not know.**

Among those who reported being aware of the Common Core, 59 percent of middle school teachers, 64 percent of high school teachers, and 50 percent of college developmental instructors report that the Common Core will improve student readiness for college “slightly” or “a great deal” (Figure 8). However, the proportions of these groups of educators who responded “I don’t know” to this question range from almost one-third to almost half. This may be due in part to some teachers’ lack of familiarity with the details of the standards (see Figure 6).

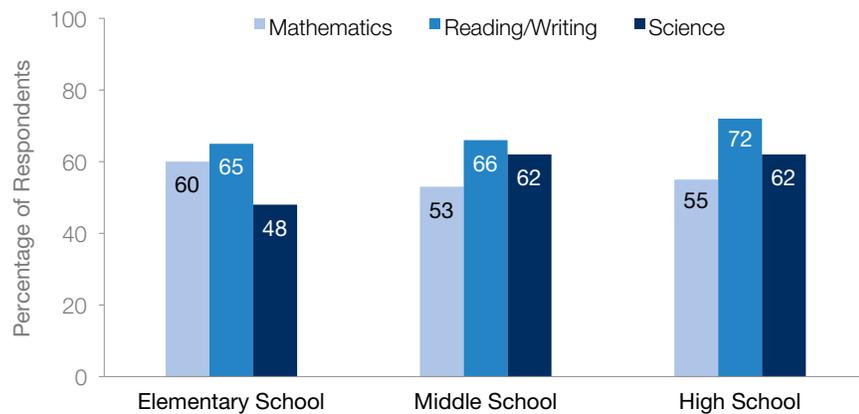
**Figure 8:** Percentages of Educators Reporting Various Opinions on Whether the Common Core State Standards Will Improve the College Readiness of All Students (Among Those Aware of the Standards)<sup>4</sup>



- Among K–12 educators who are aware of the Common Core State Standards, about two-thirds anticipate that they will need to change their current curriculum no more than slightly given state adoptions of the standards.

Considering that, in many states, districts, and schools across the US, the Common Core represents a significant change in expectations for what students need to know and be able to do before high school graduation, it is notable that such high proportions of the K–12 teachers we surveyed reported that they will need to change their curriculum “slightly” or “not at all” to reflect the standards (Figure 9).

**Figure 9:** Percentages of K–12 Educators Reporting that They Will Need to Change Their Curriculum “Not at All” or “Slightly” Given State Adoptions of the Common Core State Standards (Among Those Aware of the Standards)



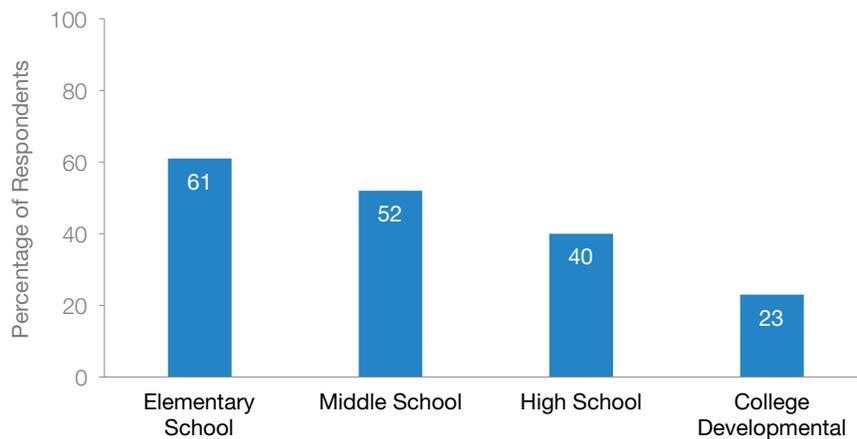
<sup>4</sup> Due to rounding, percentages for the college developmental group do not sum to 100.

Some of this confidence may suggest that teachers believe that they already teach to a college- and career-ready standard, or that, given a lack of familiarity with the content of the standards (see Figure 6), they may simply not yet be aware of how much impact the new standards will have on what they teach.

- **As was the case with their opinions of the effectiveness of their state’s, district’s, or school’s local K–13 alignment or articulation efforts aimed at increasing high school graduates’ readiness for college, educators’ opinions of similar efforts aimed at implementing the Common Core State Standards tend to be less positive the farther along in the educational pipeline they teach.**

Eighty percent of elementary school teachers, 78 percent of middle school teachers, 82 percent of high school teachers, and 48 percent of instructors of college developmental courses reported being aware of such alignment or articulation efforts—far fewer, incidentally, than reported being aware of efforts aimed at improving high school graduates’ readiness for college (Figure 4), which may again be a function of how soon various states are planning to implement the Common Core. Among these educators, the percentages reporting that alignment or articulation efforts to implement the Common Core are “very effective” decline steadily, from 3 in 5 elementary teachers down to about 1 in 5 instructors of college developmental courses (Figure 10).

**Figure 10:** Percentages of Educators Reporting that Their Local K–13 Alignment Efforts to Implement the Common Core State Standards are “Very Effective” (Among Those Aware of Such Efforts)



As in Figure 4, the percentages of respondents reporting that they were unaware of such efforts (and therefore removed from this analysis) may be a factor here: 20 percent of elementary school teachers, 22 percent of middle school teachers, 18 percent of high school teachers, and 52 percent of college developmental instructors.

## Policy Recommendations

The results of the ACT National Curriculum Survey 2012 indicate that there continues to be a large gap between high school teachers' perceptions of the readiness of their graduating students for postsecondary education and what college instructors expect their incoming first-year students to know and be able to do to succeed in credit-bearing college courses. This is due at least in part to a lack of alignment between K–12 and postsecondary curricula that may be hampering the efforts of K–12 to prepare students for life after high school.

Given that this gap is a central problem that improved state standards are intended to address, successful implementation will likely go a long way toward improving student preparation for college at the K–12 level. Undoubtedly, this will be a significant challenge for educators and policymakers alike. Differences exist among K–12 educators with regard to the extent of their awareness of the skills and knowledge needed for postsecondary readiness, and disparities also exist across states, districts, and schools in the amount and depth of preparation they have undertaken so far in anticipation of implementing improved standards. Simply put, teachers and school administrators need to ensure that they are prepared to teach college- and career-ready standards, and not all schools are prepared yet. The postsecondary system also has a role to play in improving alignment between high school and college curricula.

In recognition of these realities, ACT offers the following recommendations to help states in the pursuit of college and career readiness for all students:

### **1. Increase and improve the amount and quality of professional development about college- and career-ready standards at the K–12 level.**

Because college and career readiness is now widely expected to form the foundation of K–12 education, more needs to be done—especially at the high school level—to educate teachers about college- and career-ready standards in the states where the standards are to be implemented. More also needs to be done, throughout K–12 and in all states, to ensure that teachers and administrators are aware of the skills their students need to succeed in college and/or workforce training programs and of how these skills are to be taught and reinforced at each grade level. While states are proceeding with these efforts, the survey results affirm the need to ensure that more teachers are exposed to professional development, and that the quality of these efforts satisfies the unique needs of teachers.

**2. K–12 and postsecondary educators must collaborate to ensure that course curricula and classroom materials reflect the skills needed for college and career readiness and that these materials are seamlessly aligned across grade levels and the two systems.**

If teachers don't change their curricula and practices to reflect college- and career-ready standards, then simply implementing these standards will not be enough to improve student readiness for postsecondary education and training. And given the survey finding that many teachers have divergent perspectives on the effectiveness of current local alignment and articulation efforts, improved initiatives to bridge the expectations gap between high school and postsecondary (such as P–20 council initiatives or high school/college partnerships) will be helpful—and may in some cases be crucial—to ensuring that students are learning the right skills at each point along their educational paths.

As part of these efforts, more attention must also be paid at the postsecondary level to ensuring that students in developmental college courses leave these courses with the skills necessary to succeed in credit-bearing college coursework.

**3. Wherever possible, states and schools may need to consider channeling limited resources toward ensuring students efficient access to computer technology to prepare for the types of innovative assessments that are likely to accompany implementation of college- and career-ready standards.**

In addition to improving professional development for teachers and aligning course curricula to college- and career-ready standards, states must ensure that they are prepared to administer a new generation of student assessments geared to measuring attainment of those standards. Because many of these innovative assessments are likely to take advantage of 21st-century technology, part of this preparation may need to extend to improving computer access and infrastructure at the district and school levels. Schools may also need to be mindful of new or enhanced security protocols that a greater reliance on computerized assessment will almost certainly entail.

## Appendix: Description of Survey Sample and Process

The ACT National Curriculum Survey is a one-of-a-kind nationwide survey of educational practices and expectations conducted by ACT approximately every three years. ACT surveys thousands of teachers and college instructors in English/writing, mathematics, reading, and science for the purpose of determining what skills and knowledge are currently being taught at each grade level—and which are considered essential for college readiness. The survey also asks educators for their opinions on educational topics of current interest.

For the 2012 ACT National Curriculum Survey, we sent surveys by postal mail and e-mail to a nationally representative sample of elementary school, middle school, high school, and college instructors who teach courses in English/writing, mathematics, reading (including English language arts and social studies), and science (including Biology, Chemistry, Physics, and Earth/Space Science) in public and private institutions across the US. We also included a sample of instructors of developmental (i.e., remedial) college courses in English/writing, mathematics, and reading. We included these instructors because they should be uniquely qualified to identify the critical skills and knowledge that high school graduates are typically missing and the set of knowledge and skills that, when emphasized, result in student readiness for success in entry-level college courses. Table 1 gives the numbers of survey participants at each educational level.

**Table 1:** ACT National Curriculum Survey 2012 Participants

<b>Educational Level</b>	<b>Number of Participants</b>
Elementary school	1,052
Middle school	1,806
High school	2,943
College developmental	540
College	3,596
<b>TOTAL</b>	<b>9,937</b>

The numbers of participants listed in Table 1 compare favorably to those from past surveys. Excluding elementary school teachers, who are new to the survey, the total number of participants in 2012 is 16 percent higher than the number who participated in 2009, and 35 percent higher than the number who participated in 2005–06.

ACT uses the results from the main body of the ACT National Curriculum Survey to guide the test development of ACT’s college readiness assessments. ACT conducts this portion of the survey to ensure that its assessments are measuring the current knowledge and skills that instructors of credit-bearing, first-year college courses identify as important for success in each content area. As in past years, the results of this section affirm that the knowledge and skills that are important for readiness

and success in college and in workforce training, and the relative emphasis accorded to each, are reflected in the content of ACT Explore®, ACT Plan®, and the ACT® Test.

All participants surveyed were asked to perform two primary tasks with respect to course content. First, they were asked to rate discrete content knowledge and skills with respect to how important each is to student success in the content area. (Specifically, high school teachers and college developmental instructors were asked to rate the importance of each content or skill in a given class they teach, while instructors of credit-bearing college courses were asked to rate the importance of each content or skill as a prerequisite to success in a given class they teach.) Second, they were asked to rank groups of content and skills, known as strands, with respect to their relative importance to student readiness for college.

We also asked the K–12 teachers to indicate whether or not they teach a particular content or skill and, if so, whether they teach it as a standard part of their course or as part of a review of material that should have been learned earlier. Finally, we asked all educators a number of questions about, e.g., the amount and type of reading and writing they assign; the textbooks they use; their awareness of the Common Core State Standards and of their state's, school's, or district's alignment efforts across K–13; their students' readiness for particular kinds of coursework; and their students' degrees of reading comprehension, computer literacy, and computer access.

Because some content areas were surveyed in larger numbers than others, the values displayed in educational-level totals were averaged across English/language arts, mathematics, and science. This ensured that, in these results, no one content area would have more influence than another.

## References

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